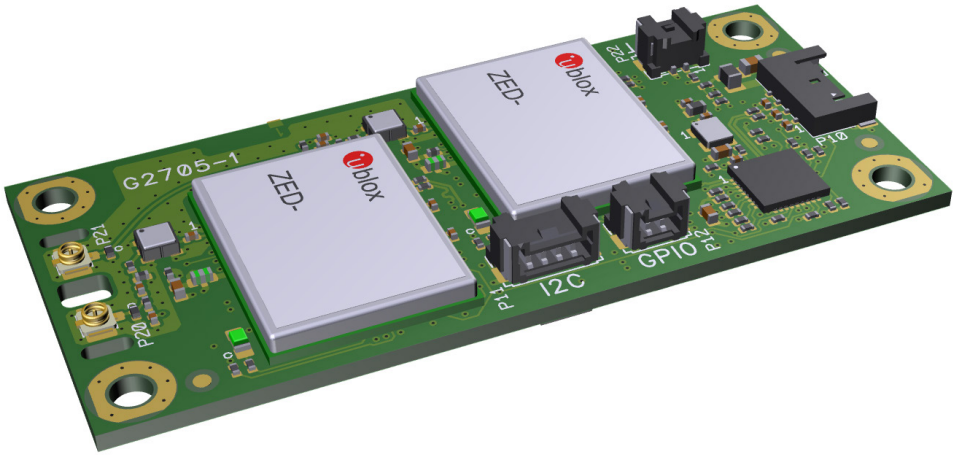
first draft

IPC/GNSS F9

Industrial Multiband GNSS module with RTK for Syslogic embedded computers



IPC/GNSSF9

Using the ublox ZED F9 series, the IPC/GNSSF9 add-on board brings high accuracy GNSS technology with RTK to Syslogic embedded computers. There are two variants available for either ADR (dead reckoning) or heading applications.
This product is to be used in combination with Syslogic embedded computers and cannot be used standalone.

- **Extended temperature range**
- **Dual ublox ZED F9 receiver onboard**
- **Centimeter level accuracy**
- **PPS out to host system**

NVIDIA

Windows IoT

debian

Product Highlights

Industrial electronic design
EMC / EMI shielding
Operating temperature -40°C to +85°C
Flexible integration into Syslogic products
Long term availability

Product Features

USB connection to host system (both receivers)
UART connection between receivers
PPS output to host system
Compact dimensions

Applications

Positioning in challenging environments (ADR)
Determining heading direction
Centimeter level accuracy with RTK

Order Code	IPC/GNSSF9-101E[1] Heading	IPC/GNSSF9-102E[1] ADR (Dead reckoning)	IPC/GNSSF9-103E[1] High accuracy
GNSS receiver			
Main GNSS receiver (moving base)	ublox ZED F9P	ublox ZED F9R[2]	ublox ZED F9P
Heading GNSS receiver (rover)	ublox ZED F9H[3]	n/a	n/a
Positioning capabilities			
Accuracy (RTK)	< 0.01 m + 1 ppm CEP	< 0.01 m + 1 ppm CEP	< 0.01 m + 1 ppm CEP
Navigation update rate (RTK)	up to 20hz	up to 30hz	up to 30hz
Acquisition time (cold start)[4]	24s	24s	24s
ADR position error	n/a	< 2% of distance traveled without GNSS	n/a
GPS bands	L1C/A, L2C	L1C/A, L2C	L1C/A, L2C
Glonass bands	L1OF, L2OF	L1OF, L2OF	L1OF, L2OF
Galileo bands	E1B/C, E5b	E1B/C, E5b	E1B/C, E5b
BeiDou bands	B1I, B2I	B1I, B2I	B1I, B2I
QZSS bands	L1C/A, L1S, L2C	L1C/A, L1S, L2C	L1C/A, L1S, L2C
SBAS bands	L1C/A	n/a	L1C/A
Communication Interfaces			
GNSS Antenna connector (internal U.FL to SMA pigtail)	2x SMA	1x SMA	1x SMA
USB 2.0 interface to host system (internal power supply)	•	•	•
Direct UART connection between main and heading receivers	•	n/a	n/a
PPS signal output to host (via I2C / GPIO[5])	optional	optional	optional
2-Pin battery connector for 3V Lithium cell battery[4]	optional	optional	optional
Technical Data			
Dimensions W x D [mm]	71 x 32	71 x 32	71 x 32
Net weight [gram]	~55	~50	~50
USB power voltage	5V	5V	5V
Power consumption typ. in Watt @5V	~1	~0.5	~0.5
Software support			
NVIDIA JetPack (Linux 4 Tegra)	•	•	•
Windows 10 IoT	•	•	•
Debian 10 / Debian 11	•	•	•
Environmental Conditions			
Operating temperature (ambient)	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Storage temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Shock: designed to meet EN60068-2-27	•	•	•
Vibration: designed to meet EN60068-2-6	•	•	•
EMC / EMI conformity EN55032/55035/61000-6-2/61000-6-4	•	•	•

[1] Please contact factory for minimum order quantities

[2] ZED F9R uses an internal IMU for dead reckoning, the IMU data can be outputted separately to the host system for user application.

[3] The F9H receiver is connected internally via UART2 to the F9P receiver. The board also features a USB Hub so both F9P/H are accessible as separate USB devices for individual configuration.

[4] Using a battery an aided start with an acquisition time of 2 seconds is possible. The battery supplies the real-time clock (RTC) and battery-backed RAM (BBR). Use of valid time and the GNSS orbit data at start up will improve the GNSS performance, as with hot starts and warm starts, especially if the RTC and BBR contents are still current. Also on ZED-F9R The fusion filter data is stored in BBR and thus ZED-F9R can restart in fusion mode.

[5] GPIO only available on NVIDIA Jetson based products, for other products I2C is used.

Syslogic Datentechnik AG
Täfernstrasse 28
CH-5405 Baden Dättwil

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For further information and support:
info@syslogic.com
support@syslogic.com
www.syslogic.com

+41 56 200 90 40 **Switzerland (Headquarters)**
+49 7741 967 14 20 **Germany and Austria**

syslogic
industrial computing